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ABSTRACT

Research on the role of life events in human development has revealed the importance of cognitive processes in pre- and post-event coping. Prior research, however, has primarily studied the role of a priori, theoretical or experientially developed cognitive taxonomies in transition coping. A study was conducted to explore the underlying cognitive dimensions associated with one major type of life event (divorce) through multidimensional scaling analyses. Subjects were 46 college students, approximately one-half of whom had experienced a divorce or separation in their families. Subjects sorted 111 statements, generated from an earlier sample of separated adults who listed questions they had asked themselves about their divorce, into categories according to the perceived meanings of the statements. Nonmetric multidimensional scaling analyses of these similarity judgments revealed that a three-dimensional solution best portrayed the structure of the data: (1) attribution versus action; (2) self versus other focus; and (3) psychological versus practical coping issues. The methodological limitations and counseling implications of the results are discussed. (Author/ABL)

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A Multidimensional Scaling Analysis of Spontaneous Causal Thinking After Divorce

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A Multidimensional Scaling Analysis of Spontaneous Causal Thinking After Divorce

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Abstract

Research on the role of life events in human development has revealed the importance of cognitive processes in pre- and post-event coping. Prior research, however, has primarily studied the role of a priori, theoretical or experientially developed cognitive taxonomies in transition coping. The purpose of this study was to explore the underlying cognitive dimensions associated with one major type of life event (divorce) through multidimensional scaling analyses. Young adult subjects sorted 111 statements, generated from an earlier sample of separated adults, into categories according to the perceived meanings of the statements. Nonmetric multidimensional scaling analyses of these similarity judgements revealed that a three dimensional solution best portrayed the structure of the data : (1) attribution versus action, (2) self versus other focus, and (3) psychological versus practical coping issues. The methodological limitations and counseling implications of the results are discussed.

A Multidimensional Scaling Analysis of Spontaneous Causal Thinking After Divorce

Research on the role of causal attributions in human action, emotion, and thought has been a major area of psychological inquiry since the 1950s. The predominant question in this body of research, until recently, concerned the relationship between different types or dimensions of causal attributions (e.g., locus and stability) and various indices of behavior (e.g., persistence in the face of failure experiences), emotion (e.g., sadness, depressive affect), and psychopathology (e.g., syndromal depression). Investigations exploring these questions have typically either induced success or failure experiences in laboratory subjects or asked subjects in the field to recall a real-life success or failure experience. Following the experimenter-manipulated or real-life outcome, subjects are either asked to generate their own causal inferences or to rate a set of predetermined causes on some kind of multistep scale. In the former case, independent judges then sort each cause into a series of a priori independent categories reflecting different causal dimensions. In the latter case, subjects' ratings are employed to explore the relationship between different types of causal attributions and human performance and emotion. Left unanswered by this large body of research, however, is the question of whether or not people actually engage in attributional thinking in real life.

Research attention over the past five years, therefore, has turned to studying factors responsible for the onset of

attributional processing and exploring whether, in fact, people do spontaneously engage in attributional thinking in response to naturally occuring life events and experiences. A recent review of this research (Weiner, 1985) concluded that there is little doubt that attributional thinking exists and that it tends to occur predominantly in response to unexpected events that denote failure (i.e., the nonattainment of a goal: unexpected political loss, unexpected defeat in a sports contest, unexpected academic failure).

On the bases of these and other findings, Brown and Heath (1984), in a cognitive-behavioral model of life-events and coping, hypothesized that unexpected life events (e.g., unexpected divorce) will give rise to a significantly greater amount of attributional thinking than will expected life events and that the type of attributions generated will have a significant impact on persons' post-unexpected event coping. In a test of the former hypothesis, Brown (1986) asked persons who had recently experienced a marital separation to indicate whether the separation was expected or unexpected and then to list all questions (if any) they asked themselves in the first two weeks after the separation. Client responses were subsequently coded into one of four categories, previously employed in a study of expected and unexpected academic successes and failures (Wong & Weiner, 1981): (1) attribution questions (e.g., why did this happen to me?), (2) action questions (e.g., what do I do now?), (3) re-evaluation questions (e.g., Am I as well-adjusted as I thought), and (4) miscelaneous questions. The results of this investigation were consistent with prior

research (e.g., Wong & Weiner, 1981) and supported the Brown and Heath (1984) hypothesis: Unexpected separations were found to elicit the greater frequency of attribution questions, while expected ones elicited primarily action questions. Further, when action questions were elicited by unexpected separations they tended to follow attribution questions, suggesting not only that attributional questions are generated when one experiences an unexpected marital separation, but also that they tend to predominate and precede questions concerning future coping activities.

However, in coding the responses elicited in this study it became apparent that the cognitive processes involved in coping with divorce may be more complex than those elicited by Wong and Weiner (1981) in academic achievement situations. A number of responses did not fit comfortably into the Wong and Weiner taxonomy, revealing a great deal of apparent heterogeneity within categories and some similarity of responses coded into different categories.

The present investigation had three purposes. First, it was designed to provide a potentially more complete and (hopefully) more accurate description of the cognitive activities of individuals following marital separation. Rather than attempting to force subject responses into existing taxonomies, we explored how responses "sorted themselves" using multidimensional scaling and cluster analytic procedures. Second, we sought to determine the conditions (e.g., expectedness) under which the resulting taxonomies or dimensions were elicited. Third, we assessed

the relationship of the generated taxonomies and dimensions to various indices of post-divorce adjustment (e.g., depression). This paper focuses only on the first purpose and describes preliminary results obtained from multidimensional scaling analyses of the stimuli (questions) generated in the Brown (1986) study.

Method

Subjects

Subjects for the present study were 46 undergraduates (18 males and 28 females) enrolled in psychology classes at a large Midwestern university (Age: $\underline{M}$ = 22.59, $\underline{SD}$ = 3.36, range = 19 - 35). Most of the sample was single (never married = 85%, married = 8%, separated/divorced = 7%) and caucasian (80%). Approximately half of the sample (44%) had experienced a divorce or separation in their families.

Procedures

Questions elicited in the Brown (1986) study were reduced for redundancy into a group of 111 questions, printed on 4 in by 6 in unlined index cards (one statement per card), and then given to each of the subjects to sort into "piles that seem to go together in terms of their content." Subjects could use as many categories as they wanted and were allowed to place as many or as few items in a given category as they liked. After completing the sorting task, they were instructed to label each group of statements according to the scheme they used to sort the cards into that category.

Testing was done in small groups of 5 to 10 subjects. Instructions were given orally to the group at the outset of

the experiment. Each subject was also given a printed set of instructions to which he/she could refer while doing the sorting task. All subjects completed a Demographic Information Form (DIF) after the oral instructions and before beginning the sorting task.

Results

To determine the degree of similarity among all possible pairs of questions (items) and, thereby, to understand the underlying dimensions on which similarity judgements were based, the sorting data were compiled into a matrix determined by the number of subjects who sorted any given pair of questions together. ALSCAL, a nonmetric multidimensional scaling program (Takane, Young, & de Leeuw, 1977), was used to convert the similarity matrix into a spatial representation in n - dimensional space.

The ALSCAL analysis was conducted to generate up to a six-dimensional solution. On the basis of f-stress values (Kruskal & Wish, 1978) and percentage of variance explained (R^2) as well as the interpretability of the dimensions, it was concluded that a three-dimensional solution best portrayed the structure of the data (6 dimensions: stress = .08, R^2 = .93; 5 dimensions: stress = .10, R^2 = .90; 4 dimensions: stress = .13, R^2 = .87; 3 Dimensions: stress = .16, R^2 = .83; 2 dimensions: stress = .22, R^2 = .75). Although some decrease in stress and increase in R2 occurred at four and five dimensions, it was not possible visually to interpret all dimensions for the four- and five-dimensional solutions.

The meaning of the three dimensional solution was interpreted

visually on the basis of the stimuli located at different points on each dimension. Thus, in the case of the first dimension, attribution versus action, at one end were such questions as "Why," "What did I do wrong," "Why did this happen to me," and other questions reflecting a search for reasons why the separation occurred. At the other end of the first dimension were such items as "How am I going to manage my job," "Should I tell my family now or later," and other questions reflecting a future orientation.

The second dimension, self- versus other-focus, reflected a continuum of locus orientation ranging from self-focused questions on one end (e.g., "How could I have been so blind" and "How am I going to deal with our friends") to other-focused questions on the opposite end (e.g., "How could my spouse leave the children" and "How is my family going to react"). The third dimension, psychological versus practical coping issues, appeared to reflect whether the question was related to psychological (e.g., "Am I going crazy) or practical (e.g., "How am I going to manage my finances") issues involved in coping with the divorce.

Discussion

The results of this investigation revealed that the primary dimension along which subjects categorized divorce-related cognitions was one of attribution (why did the divorce happen) versus action (what do I do now), thus confirming prior investigations (e.g., Brown, 1986; Weiner, 1985; Wong & Weiner, 1981) that attributional thinking is a predominant mode of cognitive processing in the real world. Further, the action-oriented end of the first dimension

provides support for the action and attribution categories employed in the Brown (1986) and Wong and Weiner (1981) investigations, but suggests further that rather than being discrete and orthogonal categories these types of questions comprise the opposite ends of a bipolar dimension. If replicated, one implication of these results would be that the frequency with which one engages in one type of thinking will be related negatively to the frequency with which one can engage in the other type of thinking. Thus, to the extent that one is trying to figure out why a divorce happened (i.e., engaging in attributional thinking) the less he or she will be generating strategies to cope with future divorce-related difficulties (i.e., engaging in action thinking).

However, the results also suggest that post-divorce cognitions may be more complex than those elicited in the achievement situations of Wong and Weiner (1981). Specifically, two (and perhaps more) further dimensions emerged from the current analyses, reflecting a self- versus other-concern and a psychological as opposed to practical coping orientation.

Although the results of these analyses are theoretically and conceptually appealing, several caveats are in order. First, the dimensions were generated on the basis of similarity judgements provided by subjects who were relatively personally naive about the divorce experience (i.e., 7% of the sample were separated or divorced). Thus, whether the same dimensions would be generated from judgements of persons who had experienced a divorce is an important empirical question for future research.

Second, the interpretations of the meaning of the dimensions

were made subjectively by the experimenters on the basis of visual inspections of the spatial relationships among the stimuli. Obviously, a more objective method of interpreting the dimensions is called for. One possibility (which we are currently pursuing) is to ask a separate group of subjects to provide independent ratings of each stimulus on a series of scales (e.g., "To what extent does this item reflect a concern with the individual's psychological state"). The average rating on each scale can then be regressed on the coordinates of that question on each of the three dimensions. The multiple correlations obtained from these regression analyses would then provide evidence on the accuracy of our current labels, allowing us to either confirm our subjective judgements or relabel the dimensions to be more consistent with the quantitative data (see Kruskal & Wish, 1978 for a more complete description of this analytic strategy).

Finally, our interest in pursuing this study is based on the assumption that certain cognitive processes play an important role in the post-divorce adjustment process and are important targets for counseling intervention. Our choice of the multi-dimensional scaling procedure was based on the assumption that cognitive processes may not be explicitly reportable and may involve networks of meaning structures. The advantage of the sorting task and the MDS analysis is that they impose minimal structure on the subjects' responses, allowing subjects to judge similarity on any basis they wish without making that basis explicit. We hope that the results of this study, shed further light on the cognitive processes involved in post-divorce coping;

thereby, allowing us to refine our theories of the post-divorce adjustment process and counseling approaches for persons having difficulty making the post-divorce transition. Further research might also extend this methodology to study the underlying cognitive structure involved in coping with other events (e.g., job loss, bereavement) and transitions (e.g., college entrance, retirement) in which cognitive processes may be critical factors in post-transition adjustment and growth.

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